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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/015,967	12/07/2001	Dan L. Eaton	P1447R1	9428

9157 7590 06/06/2003

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EXAMINER
JIANG, DONG

ART UNIT	PAPER NUMBER
1646	13

DATE MAILED: 06/06/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application N .	Applicant(s)	
	10/015,967	EATON ET AL.	
	Examiner	Art Unit	
	Dong Jiang	1646	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *07 April 2003* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *33-43* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *33-43* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *2 & 11* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED OFFICE ACTION

Applicant's amendment and election without traverse of Group II invention, represented by the original claims 10-13 and 16-21, in Paper No. 12, filed on 07 April 2003 is acknowledged. Following the amendment, the original claims 1-32 are canceled, and the new claims 33-43 are added.

Currently, claims 33-43 are pending and under consideration.

The references listed on the PTO-1449 in paper No. 11 are not present in the current application file. In response to this Office Action only, applicants may submit another set of the same references, and the Examiner will consider them as though they were submitted with IDS in paper No. 11.

Formal Matters:

Priority

This application claims priority to US provisional application 60/090,696, PCT/US99/12252, PCT/US00/08439, PCT/US00/23328, PCT/US01/06520, US applications 09/380,137, 09/709,238, and 09/941,992. For the following reasons, the Examiner finds that the present claims 33-43 are not supported in the manner required by 35 U.S.C. 101 and 112, first paragraph by any of the prior applications, thus none of present claims is entitled to the benefit of the filling date of the prior applications.

The priority applications merely discloses a polypeptide designated PRO842 and having the amino acid sequence identical to SEQ ID NO:2 in the current application, and the nucleic acid encoding the polypeptide. The prior applications fail to provide any specific, substantial and credible utility for PRO842, and provide no guidance or working examples to teach how to used the claimed invention. Therefore, the Examiner is not able to establish that the priority document satisfies the utility/enablement requirement of 35 U.S.C. 101/112, first paragraph. As such, the claims of the instant application are not entitled to the benefit of the filling date of prior applications listed above.

It is until the present application, a specific, substantial and credible utility for PRO842 is disclosed, that PRO842 specifically chemoattracts monocytes and dendritic cells (Example 13).

Claims

Applicant's attention is directed to 37 CFR 1.821. (d), which reads as follows:

> Where the description or claims of a patent application discuss a sequence that is set forth in the "Sequence Listing " in accordance with paragraph (c) of this section, reference must be made to the sequence by use of the sequence identifier, preceded by "SEQ ID NO: " in the text of the description or claims, even if the sequence is also embedded in the text of the description or claims of the patent application.

Claims 33-40 are objected to under 37 CFR 1.821. (d) for identifying a nucleotide sequence by a figure with SEQ ID NO: in parenthesis. The correct format to define a sequence structure is by referring to its SEQ ID NO. Correction is required.

Double Patenting Rejections:

Claims 33-43 of this application conflict with the claims of Application No. 10/063,527. 37 CFR 1.78(b) provides that when two or more applications filed by the same applicant contain conflicting claims, elimination of such claims from all but one application may be required in the absence of good and sufficient reason for their retention during pendency in more than one application. Applicant is required to either cancel the conflicting claims from all but one application or maintain a clear line of demarcation between the applications. See MPEP § 822.

Objections and Rejections under 35 U.S.C. §112:

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 33-37 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for claims limited in scope to a polypeptide of SEQ ID

NO:2, and a polypeptide of SEQ ID NO:2 lacking its associated signal peptide, does not reasonably provide enablement for claims to various % variants SEQ ID NO:2 (claims 22-26, for example), which do not have a functional activity, or do not have the same functional activity as SEQ ID NO:2. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to use the invention commensurate in scope with these claims.

The factors considered when determining if the disclosure satisfies the enablement requirement and whether any necessary experimentation is "undue" include, but are not limited to: 1) nature of the invention, 2) state of the prior art, 3) relative skill of those in the art, 4) level of predictability in the art, 5) existence of working examples, 6) breadth of claims, 7) amount of direction or guidance by the inventor, and 8) quantity of experimentation needed to make or use the invention. *In re Wands*, 858 F.2d 731, 737, 8 USPQ2d 1400, 1404 (Fed. Cir. 1988).

The claims are directed to % variants, which read on any or all variants meeting the sequence limitation, and encoding polypeptides either with or without a functional activity. The claims encompass an unreasonable number of nucleic acids encoding inoperative polypeptides. However, while the specification teaches that PRO842 polypeptide of SEQ ID NO:2 is capable of chemoattracting monocytes and dendritic cells (Example 13), it provides no guidance or working examples as to how the skilled artisan could use an inactive polypeptide variant of SEQ ID NO:2, as no functional limitation associated with the variants in the claims.

Due to the large quantity of experimentation necessary to determine how to use the inoperative polypeptide variants, the lack of direction/guidance presented in the specification regarding same, the absence of working examples directed to same, the complex nature of the invention, and the breadth of the claims which embrace a broad class of structurally diverse variants, undue experimentation would be required of the skilled artisan to make and/or use the claimed invention in its full scope.

Claims 33-37 are further rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claims 33-37 encompass variant polypeptides having at least 80%, 85%, 90%, 95% or 99% sequence identity with a particular disclosed sequence, such as SEQ ID NO:2. The claims do not require that the polypeptide possess any particular biological activity, nor any particular conserved structure, or other disclosed distinguishing feature. Thus, the claims are drawn to a genus of polypeptides that is defined only by sequence identity. The specification merely discloses *one* amino acid sequence of human PRO842 with SEQ ID NO:2. No variants thereof meeting the limitation of the claim were ever identified or particularly described.

To provide adequate written description and evidence of possession of a claimed genus, the specification must provide sufficient distinguishing identifying characteristics of the genus. The factors to be considered include disclosure of compete or partial structure, physical and/or chemical properties, functional characteristics, structure/function correlation, methods of making the claimed product, or any combination thereof. In this case, the only factor present in the claim is a partial structure in the form of a recitation of percent identity. There is not even identification of any particular portion of the structure that must be conserved. Accordingly, in the absence of sufficient recitation of distinguishing identifying characteristics, the specification does not provide adequate written description of the claimed genus.

Vas-Cath Inc. v. Mahurkar, 19USPQ2d 1111, clearly states that "applicant must convey with reasonable clarity to those skilled in the art that, as of the filing date sought, he or she was in possession *of the invention*. The invention is, for purposes of the 'written description' inquiry, *whatever is now claimed.*" (See page 1117.) The specification does not "clearly allow persons of ordinary skill in the art to recognize that [he or she] invented what is claimed." (See *Vas-Cath* at page 1116).

One cannot describe what one has not conceived. See *Fiddes v. Baird*, 30 USPQ2d 1481 at 1483. In *Fiddes*, claims directed to mammalian FGF's were found to be unpatentable due to lack of written description for that broad class. The specification provided only the bovine sequence.

In the instant application, applicants have a single polypeptide with a specific function that have not been correlated to any particular structural regions. Therefore, only isolated polypeptide comprising the amino acid sequence set forth in SEQ ID NO:2, but not the full breadth of the claims (variants and fragments) meets the written description provision of 35

U.S.C. §112, first paragraph. Applicant is reminded that *Vas-Cath* makes clear that the written description provision of 35 U.S.C. §112 is severable from its enablement provision (see page 1115).

Rejections Over Prior Art:

The following rejections under 35 U.S.C. §§ 102 and 103 are made in view of the determination that the effective filing date for the instantly claimed invention is 07 December 2001, which is the actual filing date of the present application.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 33-42 are rejected under 35 U.S.C. 102(b) as being anticipated by Lal et al., WO 200000610-A2 (06 Jan.-2000, provided by applicants).

Lal discloses a polypeptide, a human signal peptide-containing protein having an amino acid sequence of SEQ ID NO:94, which is 100% identical to SEQ ID NO:2 of the instant invention (see computer printout of the search results). The cited sequence, therefore, anticipates claims 33-39 and 41. With respect to claim 40, as the prior art reference teaches that SEQ ID NO:94 is a signal peptide-containing protein, indicating a mature protein lacking the signal peptide, it, therefore, anticipates the claim. Further, Lal teaches a fusion protein comprising said polypeptide and a heterologous moiety (page 39), thus, the reference also anticipates claim 42.

Claims 33-38 and 40 are rejected under 35 U.S.C. 102(b) as being anticipated by Rosen et al., WO 98/45712 (15 Oct. 1998).

Rosen discloses a human polypeptide having an amino acid sequence of SEQ ID NO:53, which comprises residues 27-119 of SEQ ID NO:2 of the instant invention with 100% sequence identity (see computer printout of the search results). The cited sequence, therefore, anticipates

claims 33-39 and 41 as being an amino acid sequence of the polypeptide shown in Figure 2 (the instant application) lacking its associated signal peptide.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 C.F.R. 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(f) or (g) prior art under 35 U.S.C. 103(a).

Claim 43 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lal et al., WO 200000610-A2 (06 Jan.-2000) as applied to claims 33-42 above, and further in view of Capon et al. (US 5,116,964).

The teachings of the primary reference are summarized above. The primary reference does not specifically teach a recombinant fusion protein comprising an immunoglobulin Fc region, and the target protein.

Capon discloses a novel polypeptide comprising an immunoglobulin Fc region, and a target protein sequence (column 5, lines 13-20). The cited reference indicates that fusion of a target protein to a stable plasma protein such as an immunoglobulin constant domain extends the in vivo plasma half-life, and facilitate purification of the protein (column 4, lines 38-43, and column 5, lines 13-20).

It would have been obvious to the person of ordinary skill in the art at the time the invention was made to make "a fusion protein comprising the target protein and an

immunoglobulin Fc region as taught by Capon. One of ordinary skill in the art would have been motivated to make the Fc fusion protein because it would improve the therapeutic value of the protein (with prolonged in vivo plasma half-life), and facilitate purification of the protein as suggested by Capon, and reasonably would have expected success in view of Capon's disclosure, in which various genes had already been expressed successfully in their systems at the time the invention was made.

Conclusion:

No claim is allowed.

Advisory Information:

Any inquiry concerning this communication should be directed to Dong Jiang whose telephone number is 703-305-1345. The examiner can normally be reached on Monday - Friday from 9:30 AM to 7:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Yvonne Eyler, can be reached on (703) 308-6564. The fax phone number for the organization where this application or proceeding is assigned is 703-308-0294.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0196.

Lorraine Spector

LORRAINE SPECTOR
PRIMARY EXAMINER

Dong Jiang, Ph.D.
Patent Examiner
AU1646
5/29/03